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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,087	07/26/2001	Robert Tso	ST00011USU2 (100-US-U2)	7956

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EXAMINER	
CORRIELUS, JEAN B	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
06/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/916,087	TSO ET AL.	
	Examiner	Art Unit	
	Jean B. Corrielus	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 12-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-21* is/are allowed.

6)☒ Claim(s) *1-7 and 15-18* is/are rejected.

7)☒ Claim(s) *12-14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant's response has overcome the objection to the disclosure set forth in the last office action.

Claim Objection

2. Claims 12-14 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 19-21, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-7, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view of Ward et al US patent No. 5,185,610 and further in view of the "Axiom Navigation, Inc document entitled "Sandpiper/Avocet Evaluation Kit User Guide", June 2000.

Woo et al discloses a Global Positioning System (GPS) receiver (fig. 1), comprising: a Radio Frequency Front End encompassed by elements 103 and 106, comprising: single stage downconverter 103 using dual mixers 205 and 206; an I/Q intermediate Frequency (IF) filter (210 and 211), coupled to the downconverter 103; an Automatic Gain Control (AGC) amplifier 215-222, coupled to the downconverter 103; an analog-to-Digital Converter (ADC) 223-224, coupled to the AGC amplifier (215-222; and a frequency synthesizer section (225) inherently including an integrated Voltage Controlled Oscillator and a reference oscillator 226 for generating a reference frequency signal; and a digital processing section (111 and 112), coupled to the RF Front End. However, Woo et al does not explicitly teach that the I/Q IF filter is an active filter configured to set the noise bandwidth of the GPS receiver and it also fails to teach the reference oscillator has a frequency of 24.5535MHz plus or minus 40 parts per million. Ward et al teaches an IF filter configured to set the band with of the GPS receiver see col. 18, lines 51-55. Given that fact, it would have been obvious to one skill in the art to configure the IF filter of Woo in the manner suggested by Ward to set the noise bandwidth of the receiver in order to prevents spurious signals from interfering with GPS signal processing. In addition, it would have been obvious to one skill in the art to configure Woo et al as an active type filter as such filter consumes less chip area as oppose to regular type filter. In addition, active filters provide signal gain that is required by many practical applications such as GPS systems. Furthermore, as evidence by Axiom Publication (Page 28) a frequency of 24.5535 MHz is one of the standard frequencies that a

reference oscillator generates in conventional GPS type receivers. Given that fact, it would have been obvious to one skill in the art to tune the reference oscillator of Woo in such a way as to output a reference frequency of 24.5535 MHz so as to be compatible with existing technology. In addition, note that the 40 ppm indicates the stability accuracy of the reference oscillator and such an accuracy would have readily provided by woo in order to stabilize the reference oscillator.

As per claim 3, it would have been obvious to one skill in the art to generate output signals from the RF front end compatible with PECL as PECL are known in the art to generate high speed high speed output signals desirable in high speed signal processing such as satellite signals.

As per claim 4, it would have been obvious to one skill in the art to configure Woo and Ward and the Axiom publication to include an acquisition signal generated by the frequency synthesizer in order to control received signal acquisition so as to facilitate enhance signal detection.

As per claim 5, it would have been obvious to one skill in the art to set the frequency acquisition to approximately equal to 37.3333f0, where f0=1.023MHz so as to satisfy system design requirements.

As per claim 6, it would have been obvious to one skill in the art to include a GPS clock output from the synthesizer in order to synchronize the receiver with the transmitting station so as to allow the receiver to communicate with the transmitter.

As per claim 7, it would have been obvious to one skill in the art to set the GPS clock signal to approximately equal to 48f0, where f0=1.023MHz so as to satisfy system design requirements.

As per claim 15, Woo teaches that the GPS receiver includes an antenna 101 (external antenna assembly).

As per claim 17, it would have been obvious that the RF front end would have included an external loop filter so as satisfy system design requirements.

5. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view Ward further in view of the AXIOM Document and view of Ciccarelli et al, US Patent No. 6,359,940.

As per claim 2, Woo, Ward et al and the AXIOM Document teach every feature of the claimed invention but do not teach the further limitations of a Low noise Amplifier (LNA) coupled to an RF band select filter, which is coupled to an RF input of the front-end. In the same field of endeavor, Ciccarelli et al teaches fig. 1 the further limitations of a Low noise Amplifier (LNA) coupled to an RF band select filter 14, which is coupled to an RF input of the front-end see fig. 1. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Woo Ward et al and the Axiom Document in order to amplify and select the signal of interest for further processing.

As per claim 16, note that Ciccarelli et al teaches a band pass filter 14. The reason to combine would have been the same as provided above in reference to claim 2.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view Ward further in view of the AXIOM Document and further in view of Hughes et al US patent publication No. US 2003/01532289 A1.

As applied to claim 1 above, Woo et al Ward and the Axiom Document teach the invention substantially as claimed but do not explicitly teach a combiner to combine the filtered signal prior to providing said signal to the AGC amplifier. Hughes teaches the further limitation of combining the filtered I and Q signal in combiner 152 and provides the combined signal to an AGC circuit 162. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Woo et al, Ward and the Axiom Document in order to reduce the complexity of the system since only a single gain control circuit would have been required after signal combining.

Allowable Subject Matter

7. Claims 19-21 are allowed over the prior art of record.

Response to Arguments

8. Applicant's arguments filed 3/31/08 have been fully considered with the following effects. In response to such to Applicant's request, at page 9, lines 2-3 of the comment, for actual evidence in support of the position taken in the outstanding art rejection with respect to the "**active** filter" be provided, note for instance, US Patent No. 6,262,623 to Molnar, col. 10, lines 10-12 and US Patent no. 6,668,165 to Cloutier, col. 1, lines 44-61.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/
Primary Examiner
Art Unit 2611